WHAT IS CLAIMED IS:

1. A method for manufacturing a radiation image conversion panel, comprising the steps of:

(a) dispersing a calcined product of stimulable phosphor in a dispersion medium, to obtain a slurry;

(b) eliminating grains that are of at least a predetermined size from the slurry, using wet classification;

(c) adding, to the slurry, a binder that is substantially soluble therein, to prepare a coating material; and

(d) applying the coating material to a support and drying to thereby form a phosphor layer.

2. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of dispersing includes providing a dispersion medium including an organic solvent.

3. A method for manufacturing a radiation image conversion panel according to claim 1, further comprising the step of adjusting density of stimulable phosphor in the slurry by concentrating the slurry after the step of eliminating grains that are of at least a predetermined size, and prior to the step of adding a binder.

4. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of eliminating grains that are of at least a predetermined size, includes repeating wet

classification a plurality of times.

5. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of eliminating grains that are of at least a predetermined size, includes using a final mesh size in the wet classification of no more than 50 μm.

6. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of dispersing includes providing a calcined product of a stimulable phosphor that is a rare earth-activated alkaline earth metal fluoro-halide based phosphor, represented by a constitutional formula (I) as follows:

$$(Ba_{1-a}, M^{II}_a)FX \cdot bM^{I} \cdot cM^{III} \cdot dA : xLn \qquad (I)$$

wherein, M^{II} indicates at least one kind of alkaline earth metal selected from the group consisting of Sr, Ca, and Mg; M^{I} indicates at least one kind of alkali metal compound selected from the group consisting of Li, Na, K, Rb, and Cs; M^{III} indicates at least one kind of trivalent metal compound, excluding Al_2O_3, selected from the group consisting of Al, Ga, In, Tl, Sc, Y, Cd, and Lu; X indicates at least one kind of halogen selected from the group consisting of Cl, Br, and I; Ln indicates at least one kind of rare earth element selected from the group consisting of Ce, Pr, Sm, Eu, Gd, Tb, Dy, Ho, Nd, Er, Tm, and Yb; A indicates at least one kind of metallic oxide selected from the group consisting of Al_2O_3, SiO_2, and ZrO_2; and a, b, c, d, and x are respectively set so as to satisfy relational expressions $0 \leqq a \leqq 0.3$, $0 \leqq b \leqq 2$, $0 \leqq c \leqq 2$, $0 \leqq d \leqq 0.5$, and

Sub D1 cancel $0<x\leqq 0.2$.

7. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of dispersing includes providing a calcined product of stimulable phosphor in the dispersion medium of an amount to result in 10 to 300 parts by weight based on 100 parts by weight of the dispersion medium.

8. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of dispersing includes turbulent stirring using a mixing blade.

9. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of eliminating grains that are of at least a predetermined size, includes using wet classification employing at least one process selected from the group consisting of filtration and screen vibration.

10. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of eliminating grains that are of at least a predetermined size, includes using wet classification employing meshes arranged in a plurality of stages having decreasing mesh sizes.

11. A method for manufacturing a radiation image conversion

panel according to claim 9, wherein the filtration is pressure filtration.

12. A method for manufacturing a radiation image conversion panel according to claim 3, wherein the step of adjusting density, includes concentrating the slurry by decantation.

13. A method for manufacturing a radiation image conversion panel according to claim 1, wherein the step of adding the binder includes providing an amount of binder so as to result in a ratio by weight of 1:1 to 1:100 of binder to stimulable phosphor.

14. A method for manufacturing a radiation image conversion panel, comprising the steps of:

(a) dispersing a calcined product of stimulable phosphor in a dispersion medium, to obtain a slurry;

(b) eliminating grains that are of at least a predetermined size from the slurry, using wet classification;

(c) substituting the dispersion medium with a solvent capable of substantially dissolving a binder;

(d) adding the binder to the slurry to form a coating material; and

(e) applying the coating material to a support and drying to thereby form a phosphor layer.

15. A method for manufacturing a radiation image conversion

panel according to claim 14, wherein the step of substituting the dispersion medium includes concentrating the slurry to adjust density of stimulable phosphor in the slurry.

16. A method for manufacturing a radiation image conversion panel according to claim 14, wherein the step of eliminating grains that are of at least a predetermined size, includes repeating wet classification a plurality of times.

17. A method for manufacturing a radiation image conversion panel according to claim 14, wherein the step of eliminating grains that are of at least a predetermined size, includes using a final mesh size in the wet classification of no more than 50 μm.

18. A method for manufacturing a radiation image conversion panel according to claim 14, wherein the step of dispersing includes providing a calcined product of a stimulable phosphor that is a rare earth-activated alkaline earth metal fluoro-halide based phosphor, represented by a constitutional formula (I) as follows:

$$(Ba_{1-a}, M^{II}_a)\,FX \cdot bM^{I} \cdot cM^{III} \cdot dA : xLn \qquad (I)$$

wherein, M^{II} indicates at least one kind of alkaline earth metal selected from the group consisting of Sr, Ca, and Mg; M^{I} indicates at least one kind of alkali metal compound selected from the group consisting of Li, Na, K, Rb, and Cs; M^{III} indicates at least one kind of trivalent metal compound, excluding Al_2O_3, selected from the group consisting of Al,

Ga, In, Tl, Sc, Y, Cd, and Lu; X indicates at least one kind of halogen selected from the group consisting of Cl, Br, and I; Ln indicates at least one kind of rare earth element selected from the group consisting of Ce, Pr, Sm, Eu, Gd, Tb, Dy, Ho, Nd, Er, Tm, and Yb; A indicates at least one kind of metallic oxide selected from the group consisting of Al_2O_3, SiO_2, and ZrO_2; and a, b, c, d, and x are respectively set so as to satisfy relational expressions $0 \leqq a \leqq 0.3$, $0 \leqq b \leqq 2$, $0 \leqq c \leqq 2$, $0 \leqq d \leqq 0.5$, and $0 < x \leqq 0.2$.

19. A method for manufacturing a radiation image conversion panel according to claim 15, wherein concentrating the slurry includes using decantation.

20. A method for manufacturing a radiation image conversion panel, comprising the steps of:

(a) dispersing a calcined product of stimulable phosphor in a dispersion medium, to obtain a slurry;

(b) eliminating grains that are of at least a predetermined size from the slurry, using wet classification; and

(c) adding a binder to the slurry that is substantially soluble therein, to form a coating material.